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An investigation of the main reasons for the development of a program in mathematics education at the collegiate level; the most important factors in mathematics, teacher training and related areas in the development of a mathematics education program; and what would be an adequate 5-year program leading to the M.S. degree in mathematics education.

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DEVELOPMENT OF A PLAN FOR MATHEMATICS EDUCATION AT THE APPALACHIAN STATE TEACHERS COLLEGE

(Five Years Leading to M.S. in Mathematics Education)

- Golden T. Buckland -

HE7461

Statement of the problem

The primary purposes of this study may be broken down as follows:

1. What are the main reasons for the development of a program in mathematics Education at the collegiate level?

2. What factors in mathematics, teacher training and related areas are of prime importance in the development of a program in Mathematics Education?

3. What would be considered an adequate five-year program leading to the M.S. Degree in Mathematics Education?

Procedure

Information for this study was obtained by a questionnaire data received from three hundred ninety-three high school mathematics departments in North Carolina. In addition to the questionnaire information was obtained from: (1) National Council of Teachers of Mathematics; (2) a study of the literature in mathematics as it pertained to education and also the literature in education which had a direct bearing on Mathematics; (3) catalogs from colleges, and (4) personal interviews with high school principals, teachers of mathematics, student teachers and members of the college faculty in the fields of Education and Mathematics.

The findings

1. The writer was unable to find a college in the United States that offered a program specifically leading to a B.S. and M.S. degrees in Mathematics Education.

2. The present training program for teachers needs to be re-evaluated in order to provide a more adequate curriculum for teachers of high school mathematics.

3. Teachers in the field are interested in improving the program of teacher training in our colleges.

4. Teachers are well qualified as far as degree requirements are concerned.

5. Teacher training in courses that coordinate mathematics and educational theory and practices was inadequate.

6. Approximately 80 per cent of the teachers had over four years of teaching experience.

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Conclusions.

1. The present training program for teachers of secondary school mathematics stands in need of revision in order to meet the needs of future teachers in mathematics and science.

2. Teacher training institutions must re-evaluate their courses in education and mathematics in order to make them meaningful and useful.

3. Better schools depend upon a clearer understanding by the teacher of the needs of his or her pupils.

4. Teachers in the field should be provided with means of keeping up with new methods and procedures in teaching mathematics.

5. The establishment of a program in Mathematics Education as outlined in the dissertation is described at the Appalachian State Teachers College in order for it to maintain the high esteem in which it is now held in the South.

Recommendations

As a result of this study the writer makes the following recommendations.

1. That a five-year course of study in Mathematics Education as outlined in the dissertation leading to the B.S. and M.S. degrees be offered at the beginning of the Fall Quarter, 1954, in lieu of the present program at the Appalachian State Teachers College.

2. A program of in-service training for teachers of secondary school mathematics be inaugurated at the beginning of the next school year at Appalachian. This program would be by extension courses and (or) Saturday classes.

3. A committee be formed for the purpose of making follow-ups of teachers trained under this new program to compare their work with those trained under the old program.

The plan for the B.S. degree in Mathematics Education is as follows:

Freshman Year

	Quarter Hours
Survey of College Algebra and Trigonometry	9
Introductory Geometry (or General Elective)	3
General Drawing	3
English Composition and Grammar	9
Personal Health and Physical Education I	3
Orientation	2
U. S. History and Government	6
Introduction to Mathematic and Scientific Thought	3
Biology for the Teacher	9
General Psychology	3

Sophomore Year

Plane and Solid Analytic Geometry	6
Current Economics	6
Elements of Physical Science	9
Mathematics Laboratory	6
Introduction to Philosophy	3
English-American and World Literature	9
Voice and Diction	3
Personal Health and Physical Education II	3
Marriage and the Family	3

Junior Year

	Quarter Hours
Differential and Integral Calculus with Applications	9
Teaching Secondary School Mathematics	6
Mathematical Statistics with Applications	3
The School	9
The Child	9
Science Electives (Inorganic Chemistry, Earth Sciences)	9
Elective	3
History of Education	3

Senior Year

Theory of Numbers and Equations	3
Geometry	3
History of Mathematics	3
The Mathematics Teacher at Work	3
Differential Equations	3
Applications of Mathematics to Science, Engineering, Industry and Commerce	3
Practice Teaching in Mathematics	15
Approach to the Humanities	6
History of Education in North Carolina	3
Electives (General)	9

The plan for the M.S. degree in Mathematics Education is as follows:

Mathematics Courses

	Quarter Hours
Select four courses from the following:	
Advanced Topics in Calculus	6
Foundations of Arithmetic	6
Foundations of Algebra	6
Foundations of Geometry	6
Electives from Biology, Chemistry or Physics	6

Mathematics Education Courses

Research in Mathematics Education (Required of all students)	3
Select four courses from the following:	
Seminar in Mathematics	3
Seminar in Science	3
Historical Backgrounds of Science	3
Philosophy of Mathematics	3
Curriculum in Secondary School Mathematics	3
Home-School-Community Relations	3
Guidance and Counselling	3